

Claims:

1. An isolated nucleic acid molecule comprising nucleotides having a sequence set forth in SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:6, SEQ ID NO: 20, SEQ ID NO: 22, SEQ ID NO: 23 or comprising nucleotides having a sequence incorporated in a plasmid designated pCm-H-608-663-N-term, deposited under ATCC Accession No. PTA-3638, complements thereof and a polynucleotide having a sequence that differs from SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:6, SEQ ID NO: 20, SEQ ID NO: 22, SEQ ID NO: 23 or a sequence incorporated in a plasmid designated pCm-H608-663-N-term, deposited under ATCC Accession No. PTA-3638 due to the degeneracy of the genetic code or a functional portion thereof or a polynucleotide which is at least substantially homologous or identical thereto.
2. The isolated nucleic acid molecule of claim 1, wherein the nucleic acid molecule comprises a polynucleotide having at least 15, preferably at least 30, more preferably at least 50 contiguous nucleotides from SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:6, SEQ ID NO: 20, SEQ ID NO: 22, SEQ ID NO: 23 or the sequence incorporated in a plasmid designated pCm-H608-663-N-term, deposited under ATCC Accession No. PTA-3638.
3. A composition comprising the isolated nucleic acid molecule of claim 1.
4. A vector comprising the isolated nucleic acid molecule of claim 1.
5. A composition comprising the vector of claim 4.

6. A method for preventing, treating or controlling osteoporosis, or for fracture healing, bone elongation or osteopenia, periodontosis, or low bone density or other conditions involving mechanical stress or a lack thereof in a subject, comprising administering to the subject an effective amount of a composition as claimed in claim 3.

5 7. A method for preventing, treating or controlling osteoporosis, or for fracture healing, bone elongation or osteopenia, periodontosis, bone fractures or low bone density or other factors causing or contributing to osteoporosis or symptoms thereof or other conditions involving mechanical stress or a lack thereof in a subject, comprising administering the vector to the subject as claimed in claim 4.

10 8. A method for preparing a polypeptide comprising expressing the isolated nucleic acid molecule of claim 1.

9. A method for preparing a polypeptide comprising expressing the polypeptide from the vector of claim 4.

10. A method for preventing, treating or controlling osteoporosis, or for fracture healing, bone elongation or osteopenia, periodontosis, bone fractures or low bone density or other factors causing or contributing to osteoporosis or symptoms thereof or other conditions involving mechanical stress or a lack thereof in a subject, comprising administering an isolated nucleic acid molecule of claim 1 or functional portion thereof or a polypeptide comprising an expression product of the gene or functional portion of the polypeptide or an antibody to the polypeptide or a functional portion of the antibody.

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11. The isolated nucleic acid molecule of claim 1, wherein the nucleic acid molecule encodes a 10 kD to 100 kD N-terminal cleavage product of the 608 protein.

12. The isolated nucleic acid molecule of claim 9, wherein the N-terminal cleavage product comprises a polypeptide of about 25kD or a polypeptide of about 70-80 kD.

13. An isolated polypeptide encoded by the polynucleotide of claim 1.

14. The isolated polypeptide of claim 13, wherein the polypeptide is identified as protein 608, or a functional portion of protein 608 or Adlican, or a polypeptide which is at least substantially homologous or identical thereto.

15. The isolated polypeptide of claim 13 wherein the polypeptide is a human protein 608, or a functional portion of protein 608 or Adlican.

16. The isolated polypeptide of claim 15, wherein the functional portion comprises a polypeptide having a molecular weight of 10kD to 100 kD.

17. The isolated polypeptide of claim 15, wherein the functional portion comprises a polypeptide having a molecular weight of about 25 kD or a polypeptide of about 70-80 kD.

18. A composition comprising one or more isolated polypeptides of claim 13.

19. An antibody elicited by a polypeptide of claim 13 or a functional portion thereof.

20. A composition comprising the antibody of claim 19 or a functional portion thereof.

21. A method for treating or preventing osteoporosis, or for fracture healing, bone elongation, or periodontosis in a subject, comprising administering to the subject an effective amount of the isolated polypeptide of claim 16.

22. A method of treating or preventing osteoarthritis, osteopetrosis, or
5 osteosclerosis, comprising administering to a subject an effective amount of a chemical or a neutralizing monoclonal antibody which inhibits the activity of the polypeptide of claim 16.

23. A receptor for the polypeptide or functional portion thereof of claim 13.

24. A method of obtaining the receptor of claim 23, comprising purifying,
10 isolating and sequencing the receptor.

25. The receptor obtained by practising the method of claim 24.

26. A method of using the receptor of claim 23 to identify proteins or polypeptides that bind to, associate with or block the receptor, for determining binding constants and degree of binding of the proteins or polypeptides, and for testing the
15 functioning of such polypeptides utilising the receptor, crystalline receptor preparations, or membrane receptor preparations

27. An isolated nucleic acid molecule comprising nucleotides having a sequence set forth in SEQ ID NO: 14, comprising the promoter specific for the OCP gene.

28. An isolated polypeptide wherein the functional portion comprises amino acids having a sequence set forth in SEQ ID NO:11, SEQ ID NO:14, SEQ ID NO:16, SEQ ID NO: 21-SEQ ID NO: 24 or SEQ ID NO: 25.

29. An isolated polypeptide of claim 28 wherein the sequence comprises
5 about the first 663 amino acids of the sequence set forth in SEQ ID NO:11, SEQ ID NO:14, SEQ ID NO:16, SEQ ID NO: 21, or SEQ ID NO: 24.

30. An isolated polypeptide of claim 28 wherein the sequence comprises about the first 241 amino acids of the sequence set forth in SEQ ID NO:11, SEQ ID NO:14, SEQ ID NO:16, SEQ ID NO: 21 , SEQ ID NO: 24 or SEQ ID NO: 25.

10 31. An expression plasmid designated pCm-H-608-663-N-term.

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